

### Low noise from electric components and energy-saving at standby mode

# IPD Series for Quasi-resonant Power Supply (MIP41X Series)

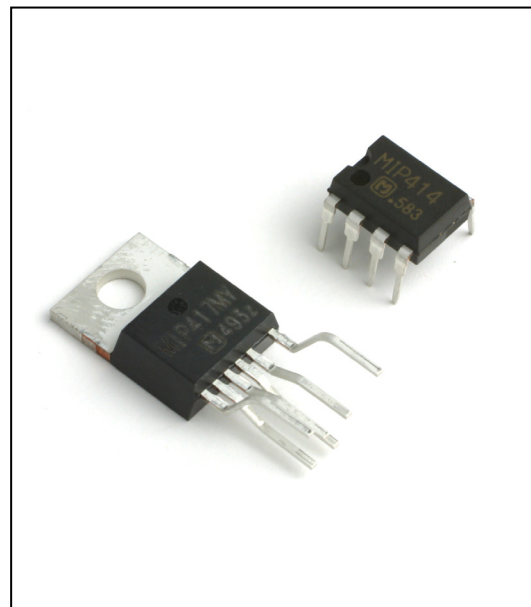
#### ■ Overview

This IPD (Intelligent Power Device) has been developed for switching power supplies, which adopts RCC quasi-resonant control method.

It offers stable operation, high efficiency and low noise under wide range of load conditions (from light to maximum load), and is especially suitable for AV and OA power supplies.

#### ■ Feature

- RCC quasi-resonant control (bottom-on detection) works to assure high efficiency and low noise for normal loads. For light loads intermittent oscillation control functions with lower drain peak current to reduce power consumption and skip transformer noise measure .
- Reduces circuit power consumption by supplying IPD inner circuit current from input terminal of auxiliary winding voltage (VCC).
- Detects OVP (over voltage protection) when auxiliary winding voltage exceeds setting value, which stops oscillation at latch mode.
- Built-in timer latching function (stops at latch mode) and over heating protective function (stops at latch mode) under overload.



#### ■ Applications

Standard power supplies (up to 60W)

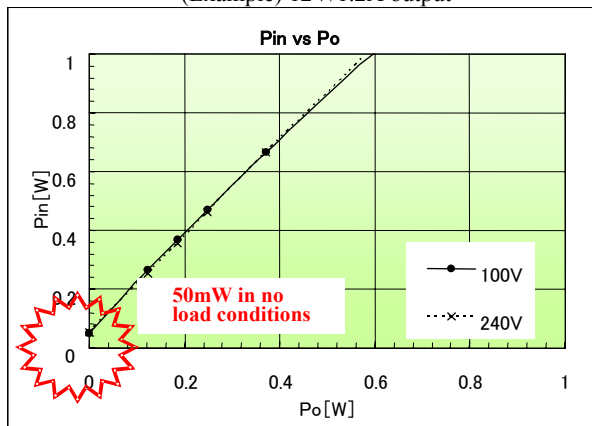
(Audio-related products, DVDs, minicomponents, printers, AC adapters, and others)

#### ■ Lineup

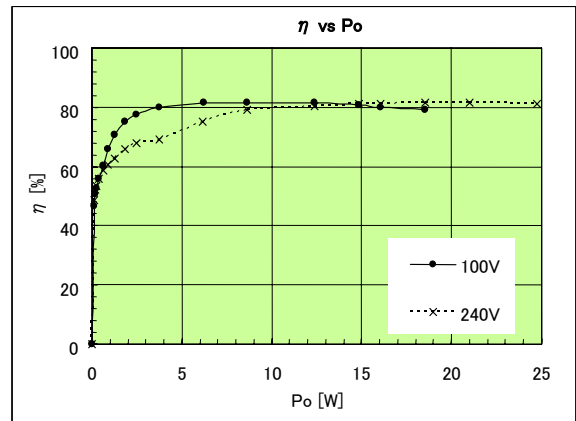
Part Number	Output voltage [W]	Characteristics			Package
		VDSS [V]	ILIMIT [A]	RON [Ω]	
MIP4110MS	3 to 6.5	700	0.45	13.6	DIP7-A1
MIP4120MS	5 to 9		0.60	4.9	
MIP4140MS	10 to 15		1.00		
MIP4140MD	10 to 20		1.35	TO-220IPD7-A2	
MIP4150MD	15 to 25		1.80		3.6
MIP4170MD	30 to 40		2.70		2.4
MIP4180MD	40 to 50		3.50		2.0
MIP4190MD	50 to 60		4.20		1.6

## Characteristic diagram

Light load characteristic  
(Example) 12V/1.2A output

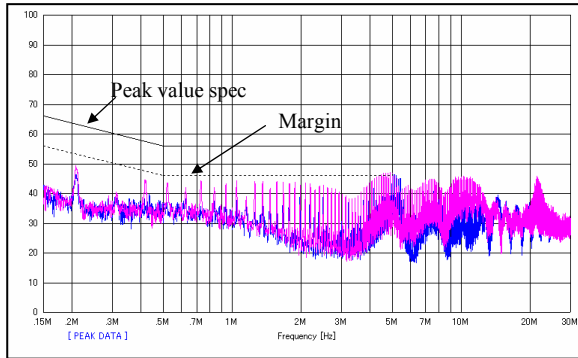


Efficiency curve

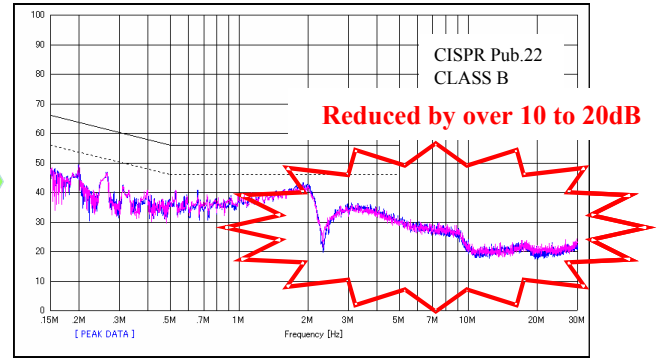


## Comparison of NOISE pin voltage (12V/1.2A output)

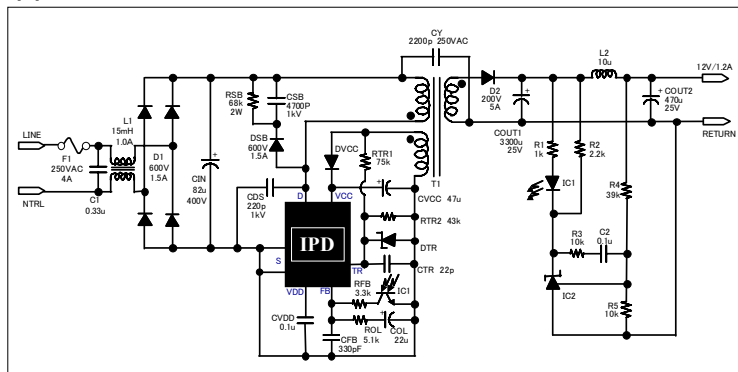
3-pin energy-saving IPD at standby mode: MIP2E3D



IPD for quasi-resonant power supply: MIP414



## Example of application circuit



## Precautions on the Sales of IPDs

- 1) The sale and/or the export of IPD products to any customer or customers located in any country other than Japan is expressly prohibited by the Agreement made and executed by and between Power Integrations, Inc. and Matsushita Electric Industrial Co., Ltd.
- 2) IPD products purchased from Matsushita Electric Industrial Co., Ltd., or its authorized agents, hereinafter referred to as MATSUSHITA, shall be used only for production purposes by those parties who have duly purchased IPD products. Those who have purchased IPD products shall not use such IPD products in unmodified form for re-sale, loan, or sample shipment for evaluation purposes to any other parties.
- 3) If a party who has duly purchased IPD products subcontracts its production to any other parties, including its subsidiaries or any other third parties inside and/or out of Japan, and the IPD products are consigned to such subcontracting parties thereat, such party is obligated to monitor and control the quantity of IPD products to prevent any of the aforementioned re-sale, loan or sample shipments from taking place.
- 4) In the event that any actual or threatened breach or violation of any of the above mentioned 1, 2, or 3, has occurred or is about to occur, MATSUSHITA will hold all shipments of IPD products and may request the party alleged to be responsible for such occurrence for necessary.

Parts No.	Able to supply	Disable to supply	Application
MIP41□	<ul style="list-style-type: none"> <li>• Domestic Japanese companies</li> <li>• Japanese companies in Asia (50% or more owned)</li> </ul>	<ul style="list-style-type: none"> <li>• European and American companies</li> <li>• Local Asian companies</li> <li>• Other local companies</li> </ul>	For power suppl